

**Abstract of the Disclosure**

5 A semiconductor device has a semiconductor die (12)  
mounted to a leadframe (25). The semiconductor die is a  
power semiconductor device. A thermally conductive  
overmolding compound (22) is formed over the  
semiconductor die. The overmolding compound is made with  
a thermally conductive epoxy that conducts heat in the  
range of 2-5 watts/meter K. A pin-fin heat sink (24) is  
10 mounted to a top surface of the thermally conductive  
overmolding compound. The heat sink has a solid base  
(28) with a plurality of pin-fins (30) extending from the  
base. Scour lines (40) are cut in the base between the  
pin-fins. The heat generated by the semiconductor die is  
15 dissipated through the thermally conductive overmolding  
compound to the pin-fin heat sink.